

研究简报

## 酸性条件下脲醛树脂中不稳定结构的研究

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摘要

通过较强酸性介质中尿素和甲醛的反应, 在不同条件下合成了透明的脲醛树脂溶液, 利用液体<sup>13</sup>C NMR研究了甲醛与尿素摩尔比对最终树脂中不稳定结构的影响.

关键词 [脲醛树脂](#) [不稳定结构](#) [13C NMR](#) [摩尔比](#)

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## Studies on Unstable Structures in Urea-formaldehyde Resins Prepared in Strong Acid Medium

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**Abstract** The variations of unstable structures in the synthesized urea-formaldehyde (UF) resin systems with the change of the molar ratios of formaldehyde to urea were discussed by <sup>13</sup>C NMR spectroscopy. The results show that the relative contents of dimethylene ether groups, methylols and unreactive formaldehyde increased gradually with the increase of the molar ratios of formaldehyde to urea from 0.5 to 3.0, which implied that the structure of UF resins can be optimized by controlling the molar ratios of formaldehyde to urea in the process of synthesizing UF resin. It is optimal for the molar ratios of formaldehyde to urea in the range of 1.5 to 2.0, as evidenced by small amounts of unstable structures and significant amounts of stable structures in UF resins prepared.

**Key words** [Urea-formaldehyde resin](#) [Unstable structure](#) [13C NMR](#) [Molar ratio](#)

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